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Study of Asymmetrical Muscle Function in Occlusion by Means of Electromyography in Patients with Temporomandibular Disorders

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Some authors defend the idea that orthopedic instability, occlusal interferences, and the presence of muscular and/or articular unilateral pain, that are so common in patients with temporomandibular disorders, should necessarily lead to a marked asymmetry in the functioning of the masticatory muscles and as this asymmetry is quantified in the electromyographic records it could be of great use in diagnosis.

AIM OF THE WORK: The purpose of our study was to determine if muscular function in dysfunctional patients is more asymmetrical than in healthy individuals, in order to use this clinical signal in the diagnosis of cranio-mandibular disorders.

METHOD: We carried out electromyographic tests on a group of 22 patients, who had previously been diagnosed as suffering from a temporomandibular dysfunction. After submitting them to Helkimo test, we compared the results of the electromyographic tests with a control group comprising 19 healthy individuals.

MATERIAL: For the electromyographic tests we used a K6-I electromyograph, which allowed us to calculate the average electromyographic activity generated by each one of the muscles monitored, in registers of 15 seconds in length.

RESULTS: There are significant differences in the means and medians of both groups. The asymmetry index variable discriminates the individuals that belong to each group.

CONCLUSIONS: The results of the comparative study indicated that muscular asymmetry is more pronounced in dysfunctional patients. However, the discrimination capacity of the Asymmetry Index variable should be combined with that of other electromyographic variables in order for it to be used as a diagnostic criteria in Cranio-Mandibular Dysfunctions.

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Influence of the Splint Therapy on Muscle Function and on Mandibular Kinetics in the Treatment of a Patient with Malocclusion and Severe Temporomandibular Disorder

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INTRODUCTION: Despite the most recent changes in the treatment of temporomandibular disorders, the relaxation splint is still the most employed therapeutic variety. Some authors, however, have doubts about its actions on neuromuscular function and suspect that its effectiveness is only due to psychological factors and placebo effect.

AIM: In this study an attempt was made to study the neuromuscular response of the stomatognathic apparatus in a temporomandibular disorder patient during splint therapy in order to evaluate its therapeutic effectiveness.

MATERIAL AND METHODS: We performed a clinical examination, occlusal analysis and electromyographic and kinesiographic tests in a patient with bruxism, malocclusion and severe temporomandibular disorder, in order to compare the results with those obtained after two months of splint treatment. For this purpose we used a K6I electromyograph and kinesiograph device, the Helkimo test and a Dentatus ARL articulator.

RESULTS AND CONCLUSION: After two months wearing the splint, the patient reports symptomatic improvement. Joint and muscle pain are reduced. The study of the mandibular kinetics shows a wider range of movements and less deviation of the midline in open-close recordings. Electromyography shows an improvement of masseter muscle function in clenching and chewing tests and a decrease of temporalis muscle hypertonicity in the mandibular rest position. Furthermore, the function of all the muscles explored, despite the lateral crossbite malocclusion, is more symmetrical.